

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Atty. Docket

Sylvie Jeannin

US 010717

Confirmation No. 5510

Serial No. 10/029,812

Group Art Unit: 2621

Filed: DECEMBER 27, 2001

Examiner: ZHAO, DAQUAN

Title: COMMERCIAL DETECTION IN AUDIO-VISUAL CONTENT BASED ON
SCENE CHANGE DISTANCES ON SEPARATOR BOUNDARIES

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United States Patent and Trademark Office
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APPEAL BRIEF

Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows, having filed a Notice of Appeal on December 26, 2007:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-24 are pending in this application. Claims 1-24 are rejected in the Final Office Action mailed on September 27, 2007. This rejection was upheld, in an Advisory Action that mailed on November 7, 2007. Claims 1-24 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellant filed on October 31, 2007 an after final amendment in response to a Final Office Action mailed on September 27, 2007. The after final amendment included amendments to the claims. In an Advisory Action mailed on November 7, 2007, it is indicated that the after final amendment filed on October 31, 2007 will be entered but does not place the application in condition for allowance. Further, Appellant is concurrently filing a second after final amendment that includes amendments to correct grammatical errors in claims 10 and 20, entry of which is respectfully requested. This Appeal Brief is in response to the Final Office Action mailed September 27, 2007, that finally rejected claims 1-24, which remain finally rejected in the Advisory Action mailed on November 7, 2007.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as recited in independent claim 1, and similarly recited in independent claims 7, 10 and 20, is directed to a method for detecting commercials in a compressed video stream, such as the commercial C_1 shown in FIG 3. As described on page 7, lines 4-7, the method comprises compressing video data and generating compressed video data; and detecting a plurality of separators based on the generated compressed video data.

As described on page 9, line 20 to page 10, line 15, each separator, such as the separator S_1 shown in FIG 3, is defined by detecting at least two consecutive scene changes within a number of consecutive frames.

As shown in FIG 4 and described on page 9, lines 9-15, and page 12, line 11 to page 14, line 2, the method further includes determining the beginning and ending of a commercial break among the separators by comparing a gap between the separators, wherein the number of consecutive frames is less than a further number of frames of the commercial break.

The present invention, for example, as recited in independent claim 7 also include a method for detecting commercials in a compressed video stream. As described on page 7, lines 4-7; and page 9, line 20 to page 10, line 15, the method includes encoding incoming video data received from a transmitting source to generate compressed video data; and detecting separators in the generated compressed video data, where each separator, is defined by detecting at least two consecutive scene changes within a number of consecutive frames.

As shown in FIG 4 and described on page 9, lines 9-15, and page 12, line 11 to page 14, line 2, the method further includes determining the beginning and ending of a commercial break by comparing a gap between the separators to a predetermined threshold value, wherein the number of consecutive frames is less than a further number of frames of the commercial break. A separator is identified as the beginning of a commercial break when the gap between one separator and a previous separator is greater than the predetermined threshold value. Further, a separator is identified as the ending of a commercial break when the gap between a

separator and the next separator is greater than the predetermined threshold value.

Further, the present invention, for example, as recited in independent claim 10 includes an apparatus for detecting commercials in a compressed video stream, as shown in FIGs 1-2 and described on page 7, line 22 to page 9, line 20, where a video encoder 14 receive uncompressed video data and generate compressed video data. A detector 22 detects separators in the compressed video data, where each separator is defined by detecting at least two consecutive scene changes within a number of consecutive frames. A processor 24 is configured to edit the compressed video data by identifying the beginning and ending of a commercial break in the compressed video data. A playback selector 28 is provided for editing the compression video data to skip the commercial break for a subsequent viewing, wherein the number of consecutive frames is less than a further number of frames of the commercial break.

Further, the present invention, for example, as recited in independent claim 20 includes an apparatus for detecting a commercial in a video stream. As shown in FIGs 1-2 and described

on page 7, line 22 to page 9, line 20, the apparatus includes a detector 22 configured to detect the commercial by detecting at least two consecutive scene changes in a number of consecutive frames the video stream, where the number of consecutive frames is less than a further number of frames of the commercial.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claim 20 of U.S. Patent Application Serial No.
10/029,812 is anticipated by U.S. Patent No. 6,449,021 (Ohta); and
whether claims 1, 7, 10 and 20 of U.S. Patent Application
Serial No. 10/029,812 are unpatentable under 35 U.S.C. §103(a) over
Ohta in view of PCT Publication No. WO 01/35409 (Christopher).

ARGUMENT

Appellant respectfully requests the Board to address the patentability of independent claims 1, 7, 10 and 20, and further claims 2-6, 8-9, 11-19 and 21-24 as depending from independent claims 1, 7, 10 and 20, based on the requirements of independent claims 1, 7, 10 and 20. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellant herein specifically reserves the right to argue and address the patentability of claims 2-6, 8-9, 11-19 and 21-24 at a later date should the separately patentable subject matter of claims 2-6, 8-9, 11-19 and 21-24 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of independent claims 1, 7, 10 and 20 is not intended as a waiver of Appellant's right to argue the patentability of the further claims and claim elements at that later time.

Claim 20 is said to be anticipated by Ohta.

Ohta is directed to an information processing apparatus capable of accurately detecting one or more commercials included in a television broadcast. A commercial candidate segment detector 16 (FIG 2) detects a commercial candidate segment on the basis of silent segments and scene change points. As shown in FIG 2, the Ohta apparatus includes a scene change detector 15 that detects a single "scene change with respect two successive frames." (Column 8, lines 14-15; see also column 8, lines 24 and 51)

As specifically recited on column 9, lines 30-35:

the commercial candidate segment detector 16, as shown in FIG. 12C, if time of a single scene change segment or the total time of two or more adjacent scene change segments is an integer multiple of 15 seconds and the segments are stereo segments, judges the segments as commercial candidate segments.

Thus, a commercial candidate is detected in Ohta based on the time of scene change segments.

Further, column 9, line 66 to column 10, line 29 discloses a long process where commercial candidate segments are finally "judged as a commercial segment." (Column 10, line 29, emphasis

added) In particular, scene changes (FIG 14B) that occur during silent segments (FIG 14A) are grouped in time of integer multiples of 15 seconds (FIG 14D), where groups having a sound multiplex mode signal of 1 are selected as commercial candidate segments (FIG 14E). Finally, resulting commercial candidate segments that include more than one scene changes are judged as a commercial segment (FIG 14G).

It is respectfully submitted that the Ohta does not teach or suggest the present invention as recited in independent claim 20, and similarly recited in independent claims 1, 7 and 10 which, amongst other patentable features, requires (illustrative emphasis provided):

a detector configured to detect the commercial by detecting at least two consecutive scene changes in a number of consecutive frames the video stream.

There is simply no teaching or suggestion in Ohta of detecting a commercial by detecting at least two consecutive scene changes in a number of consecutive frames the video stream.

Claims 1, 7 and 10 are said to be unpatentable over Ohta in view of Christopher.

As discussed above, Ohta does not teach or suggest detecting separators defined by detecting at least two consecutive scene changes, as recited in independent claims 1, 7 and 10. Even if Ohta did disclose such separators, Ohta does not teach or suggest:

determining the beginning and ending of a commercial break among said plurality of separators by comparing a gap between said plurality of separators,

as recited in independent claim 1, and similarly recited in independent claim 7.

The last sentence on page 3 of the Advisory Action, refers to the commercial CM (or scene change segments 1-4 of FIG 14C) as a gap between scene change segments 0 and 5. However, such a 'gap' in Ohta is not between 'separators defined by detecting at least two consecutive scene changes,' as recited in independent claims 1 and 7.

Instead of detecting commercials by comparing a gap between separators, which are defined by two consecutive scene changes, Ohta detects commercials using a long process described above in

connection with FIGs 14A-14G.

Ohta, on Column 11, line 39 to column 12, line 29, describes another long process where a commercial candidate is judged to be a commercial segment based on the number of frames being within an acceptable error.

For example, a commercial candidate block A (formed from segments a, b and c shown in FIG 18D) is judged to be a commercial block since the frame count (of segments a, b and c) is 1803 which is within the expected range of 1800 ± 3 . By contrast, commercial candidate block B (formed from segments d, e, f and g shown in FIG 18D) is judged to be a NOT commercial block since the frame count (of segments d, e, f and g) is 910, which is outside the expected range. (See Column 11, line 60 to column 12, line 8).

On column 12, lines 17-49, Ohta discloses judging two commercial blocks A and B separated by two scene change segments 5 and 6, as a single commercial block (segments 1-10), since the "number of frames (150 in this case) is smaller than or equal to a predetermined threshold value (e.g., 300 frames(10 seconds)). Column 12, line 22-24. (Emphasis added)

Such disclosure in Ohta is not related to and does not teach or suggest "determining the beginning and ending of a commercial break among said plurality of separators by comparing a gap between said plurality of separators," as recited in independent claim 1, and similarly recited in independent claims 7 and 10. Ohta does not appear to use any gaps between separators to detect the beginning and ending of a commercial.

Christopher is cited to allegedly show other features and does not remedy the deficiencies in Ohta.

Based on the foregoing, it is respectfully submitted that independent claims 1, 7, 10 and 20 are allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 2-6, 8-9, 11-19 and 21-24 should also be allowed at least based on their dependence from independent claims 1, 7, 10 and 20.

In addition, Appellant denies any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the

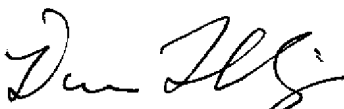
presented remarks. However, the Appellant reserves the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1, 7, 10 and 20 are patentable over Ohta in view of Christopher.

Thus, the Examiner's rejections of claims 1-24 should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) A method for detecting commercials in a compressed video stream, the method comprising the acts of:
compressing video data and generating compressed video data;
detecting a plurality of separators based on said generated compressed video data, each of said separators is defined by detecting at least two consecutive scene changes within a number of consecutive frames;

determining the beginning and ending of a commercial break among said plurality of separators by comparing a gap between said plurality of separators, wherein the number of consecutive frames is less than a further number of frames of the commercial break.

2. (Previously Presented) The method of claim 1, wherein the act of determining the beginning and ending of a commercial break further comprises the act of:

identifying one of said separators as the beginning of a commercial break when the gap between said one separator and a previous separator is greater than a predetermined threshold value.

3. (Previously Presented) The method of claim 1, wherein the act of determining the beginning and ending of a commercial break further comprises the acts of:

identifying one of said separators as the ending of a commercial break when the gap between said one separator and a next separator is greater than a predetermined threshold value.

4. (Original) The method of claim 1, wherein said plurality of separators is inserted into said video data at a transmitting source.

5. (Previously Presented) The method of claim 1, wherein the act of detecting said plurality of separators in said compressed video data includes identifying an abrupt increase in an average Mean Absolute Difference (MAD) value of said generated compressed video data.

6. (Previously Presented) The method of claim 1, wherein the

act of detecting said plurality of separators in said compressed video data is performed based on an increase in an average Mean Absolute Difference (MAD) value of said generated compressed video data.

7. (Previously Presented) A method for detecting commercials in a compressed video stream, the method comprising the acts of:

encoding incoming video data received from a transmitting source to generate compressed video data;

detecting a plurality of separators in said generated compressed video data, each of said plurality of separators is defined by detecting at least two consecutive scene changes within a number of consecutive frames;

determining the beginning and ending of a commercial break by comparing a gap between said plurality of separators to a predetermined threshold value, wherein the number of consecutive frames is less than a further number of frames of the commercial break;

identifying one of said separators as the beginning of a

commercial break when the gap between said one separator and a previous separator is greater than said predetermined threshold value; and

identifying another one of said separators as the ending of a commercial break when the gap between said another one separator and a next separator is greater than said predetermined threshold value.

8. (Previously Presented) The method of claim 7, wherein said plurality of separators is selectively inserted into said incoming video data at said transmitting source.

9. (Previously Presented) The method of claim 7, wherein the act of detecting said plurality of separators in said compressed video data is performed based on a change in an average Mean Absolute Difference (MAD) value of said generated compressed video data.

10. (Previously Presented) An apparatus for detecting

commercials in a compressed video stream, comprising:

a video encoder for receiving uncompressed video data and generating compressed video data;

a detector for detecting a plurality of separators in said compressed video data, each of said separators being defined by detecting at least two consecutive scene changes within a number of consecutive frames;

a processor configured to edit said compressed video data by identifying the beginning and ending of a commercial break in said compressed video data; and

a playback selector for editing said compression video data to skip said commercial break for a subsequent viewing, wherein the number of consecutive frames is less than a further number of frame of the commercial break.

11. (Original) The apparatus of claim 10, further comprising a memory for storing said compressed video data with the identification of the beginning and ending of said commercial break.

12.(Original) The apparatus of claim 10, further comprising a decoder for generating decompressed video data.

13.(Original) The apparatus of claim 10, wherein said compressed video data includes an identifier of a presence of a sequence of uni-color frames.

14.(Original) The apparatus of claim 10, wherein said compressed video data includes an identifier of a transition between a television program and said commercial break.

15.(Original) The apparatus of claim 10, wherein said compressed video data includes an identifier of a transition between the successive commercial programs.

16.(Original) The apparatus of claim 10, wherein said compressed video data includes an identifier of at least two successive scene cuts.

17.(Original) The apparatus of claim 10, wherein said detector detects said plurality of separators based on an abrupt change in an average Mean Absolute Difference (MAD) value of said generated compressed data.

18.(Original) The apparatus of claim 10, wherein said compressed video data includes at least one of a quantizer scale, motion vector data, bit rate data, a variation of luminance within a frame, a variation of color within a frame, a total luminance of a frame, a total color of a frame, change in luminance between frames, a mean absolute difference, and a quantizer scale.

19.(Previously Presented) The apparatus of claim 12, wherein said processor is programmed to identify an indicator of at least two scene cuts in said decompressed video data and to generate an identifier of the location in a sequence of said decompressed video data coinciding with said indicator of at least two said scene cuts.

20. (Previously Presented) An apparatus for detecting a commercial in a video stream, comprising a detector configured to detect the commercial by detecting at least two consecutive scene changes in a number of consecutive frames the video stream, wherein the number of consecutive frames is less than a further number of frame of the commercial.

21. (Previously Presented) The apparatus of claim 20, wherein the number of consecutive frames is three or four.

22. (Previously Presented) The method of claim 1, wherein the number of consecutive frames is three or four.

23. (Previously Presented) The method of claim 7, wherein the number of consecutive frames is three or four.

24. (Previously Presented) The apparatus of claim 10, wherein the number of consecutive frames is three or four.

EVIDENCE APPENDIX

None

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Appeal Brief in Reply to Final Office Action of September 27, 2007,
and Advisory Action of November 7, 2007

RELATED PROCEEDINGS APPENDIX

None